

# SLI Compliance

## Data, Software or TDP Minor Change Evaluation & Review Form

<b>Vendor:</b>	Hart InterCivic	<b>Date:</b>	09/29/2023
<b>Change ID:</b>	ECO-01619	<b>System(s):</b>	Verity 2.7 Voting System
<b>Product:</b>	Central, Scan, Scan with Relay, and Reader (non-EAC certified device)	<b>Relevant Application(s):</b>	Central, Scan, Scan with Relay, and Reader (non-EAC certified device)

Put an X in the appropriate box(es):

	<b>TDP Change</b>
	<b>Data Change</b>
x	<b>Software Change</b>

### Change Summary Description

Ballots may fail to scan when there are issues with the print quality of Targeting Landmarks. This enhancement improves Verity's resistance to variability in print quality.

Targeting Landmarks are found on all four corners and both sides of the paper ballot and are used to determine ballot geometry that defines where ballot layout elements are found. If all 8 Targeting Landmarks are not detected, then the ballot will be rejected.

ECO-01619 introduces a modification that adjusts the tolerances of landmark detection on Verity ballots. The change alters how the landmark detection algorithm detects the landmark's initial (left) outbound black line:

1. It reduces the required minimum width of that line from 6 to 4 pixels when scanned at 200 dpi.
2. It reduces the required minimum width of that line from 12 to 8 pixels when scanned at 400 dpi, which occurs when the Scan device is configured to expect PVR based ballots by default.

The following software applications were updated to support the above modifications:

1. Central
2. Scan
3. Scan with Relay
4. Reader – a non-EAC certified ballot verification device for select State deployments.

### Reference Documents:

EAC 2005 Voluntary Voting System Guidelines (VVSG) Vol. II, Sec. 1.7.2  
 EAC Voting System Testing and Certification Program Manual Ver. 3.0, Sec. 3.5.1.  
 NOC 19-01: Software De Minimis Changes, 11-15-2019

### Documentation used in SLI's Assessment:

ECO-01619 Summary - Verity 2.7 Landmark Detection Improvement 4005829 A00  
 ECO-01619 QA Test Report for Verity 2.7.6 4005830 A00  
 Record of Verity 2.7.6 Trusted Build  
 SLI's\_ Hart ECO-01619-Ballot Targeting Landmark Test Suite Rev2



**Manufacturer Reasoning for Minor Change Determination**

These changes do not materially alter the system’s reliability, functionality, capability, or operation.

Put an X in the appropriate box:

Change Evaluation		Comments
	The change affects the form, fit or function of the voting system component(s) and therefore requires further testing to be performed.	N/A
	<b>Minor change:</b> a change to a certified voting system’s data and/or TDP, the nature of which will not materially alter the system’s reliability, functionality, capability, or operation	N/A
<b>x</b>	<b>Software Minor change:</b> a change to the system’s software that meets the EAC requirements as identified below.	The changes do not impact the Base OS master image. No other Verity products or releases are impacted by this change.

**Software minor changes should have the following general characteristics:**

- (1) Update a discrete component of the system and do not impact overall system functionality. (2) Do not modify the counting or tally logic of a component or the system (formatting changes to reports are allowable).
- (3) Do not affect the accuracy of the component or system. (4) Do not negatively impact the functionality, performance, accessibility, usability, safety, or security of a component or system. (5) Do not alter the overall configuration of the certified system (e.g. adding ballot marking device functionality to a previously certified DRE component).
- (6) Can be reviewed and/or tested by VSTL personnel in a short amount of time (approximately less than 100 hours)

**SLI Evaluation and Minor Change Determination**

ECO-01619 affects Verity 2.7 only.

Central, Scan, Scan with Relay, and Reader software updated to 2.7.6 to accommodate the change.

Workstation software images:

- Central Server/Standalone
- Central DB Server
- Central Client

Devices CFast card software images:

- Verity Scan (1204)
- Verity Scan (38BT)
- Verity Scan w/Relay (1204)
- Verity Scan w/Relay (38BT)
- Verity Reader (38BT) – a non-EAC certified verification device for select State deployments.

Trusted Build witnessed by SLI Compliance via Teams. Source Code Review verified that only the Targeting Landmark detection is modified. Review also identified changes to 4 files and 103 lines, the update impacts scanning software only to Central, Scan, and Reader.

The testing, as detailed in Hart’s internal QA “ECO-01619 QA Test Report for Verity 2.7.6 provides sufficient

coverage to accommodate this modification including over 615,000 ballots scanned without issue.

SLI Compliance performed additional analysis by running a volume regression test on all test configurations listed above. This included exercising the functionality of the Verity 2.7 voting system consisting of pre-vote capabilities, reviewing ballots, scanning ballots, and post-voting capabilities. All configurations successfully read and processed ballots verifying the Verity 2.7 voting system capabilities of identifying ballot landmarks. The volume test passed with no issues found.

Please see Hart ECO-01619-Ballot Targeting Landmark Test Suite Rev 2 for additional details.

As required under section 3.5.1 of the EAC's Voting System Testing and Certification Program Manual Version 3.0, and in accordance with the instruction provided in *NOC 19-01: Software De Minimis Changes*, SLI Compliance considers the nature of ECO-01619 to be minor and therefore not to affect the Federal certification status for the Verity Voting 2.7 system. No additional testing is required.

**For Software minor changes only: Summary of Test Results (attach any additional documentation)**

See ECO-01619 QA Test Report for Verity 2.7.6 4005830 A00 for additional details.

SLI's\_ Hart ECO-01619-Ballot Targeting Landmark Test Suite Rev2

	Approved by/Title	Signature:	Date:
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	Michael D. Santos Director		09/29/2023